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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,152	03/31/2004	Karl Brown	008325 USA/CPI/LINER/BARR	9014
61285 7590 09/27/2007 JANAH & ASSOCIATES, P.C. 650 DELANCEY STREET, SUITE 106 SAN FRANCISCO, CA 94107			EXAMINER THOMAS, LUCY M	
			ART UNIT 2836	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/816,152

**Applicant(s)**

BROWN ET AL.

**Examiner**

Lucy Thomas

**Art Unit**

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Double Patenting*

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 6, 8-10, 13-14, 11-12, 20-21, and 17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 15, 19-21, and 23 of copending Application No. 11/221,169. Although the conflicting claims are not identical, they are not patentably distinct from each other.

Claim 1 of the instant application and 15 of co-pending application recite an electrostatic support or pedestal, and electrostatic chuck comprising dielectric/ceramic body or covering with embedded electrode, and having a surface to receive or support a substrate, a base plate comprising a composite of porous ceramic infiltrated with metal, and annular flange, extending beyond the periphery of the dielectric.

Claims 6, 8-10, 13-14 and 11-12, 20-21, and 17 of instant application and Claims 19-21, and 23 of the co-pending applications further limits the electrostatic chuck of Claim 1 with spring loaded heat transfer plate, and a pedestal having peripheral edges, and spiral fluid channels.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Allowable Subject Matter***

3. The indicated allowable subject matter of claims 11-12 is withdrawn in view of the newly discovered reference(s) to Cole et al. (US 6, 700, 099). Rejections based on the newly cited reference(s) follow.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, 4-5, 6-10, 14-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weldon (US 6, 108, 189) in view of Wang et al. (US 6, 538, 872). Regarding Claim 1, Weldon discloses an electrostatic chuck capable of attachment to a pedestal in a process chamber (see Figure 2), the chuck comprising:  
(a) an electrostatic puck 100 comprising a ceramic body with an embedded electrode 110, the ceramic body having a substrate support surface 170 with an annular periphery; and (b) a base plate below the electrostatic puck, the base plate having

an annular flange (see element 180 in Figure 5a, Column 10, lines 59-67) extending beyond the periphery of the ceramic body.

Weldon does not disclose the base plate comprises a composite of a ceramic material comprising pores that are at least partially filled by a metal. Wang discloses an electrostatic chuck (see Figures 4a, 4b) comprising a base plate 175 comprising a composite of a porous ceramic infiltrated with metal (see Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electrostatic chuck of Weldon, and to provide a base plate as taught by Wang for high temperature operation of the chuck without excessive thermal or mechanical degradation (see Wang, Column 2, lines 29-32).

Regarding Claim 2, Weldon discloses that the annular flange comprises a plurality of holes to allow connectors to pass therethrough (see element 150 in Figure 5a).

Regarding Claim 4, Wang discloses that the ceramic material comprises silicon carbide and the metal comprises aluminum (see Column 6, lines 2-5).

Regarding Claim 5, Wang discloses the volume percentage of aluminum in the composite is from about 20% to about 80% (see Column 6, lines 2-5).

Regarding Claim 6, Weldon discloses an electrostatic chuck (see Figure 2) capable of exhibiting reduced thermal expansion mismatch in a process chamber (see Column 2, lines 5-10, Column 3, lines 27-30), the chuck comprising: (a) an electrostatic puck 100 comprising a ceramic body with an embedded electrode 110, the ceramic body having a substrate support surface 170 and an annular periphery; (b) a base plate

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below the electrostatic puck, the base plate having an annular flange 180 (see Figure 5a) extending beyond the annular periphery of the ceramic body, the annular flange comprising a plurality of holes that are shaped and sized to allow connectors to pass therethrough (see element 150 in Figure 5a), and (c) a support pedestal 336 (see Figure 7) having a housing and an annular ledge, the annular ledge extending outwardly from the housing, wherein the annular ledge is capable of being attached to the annular flange of the base plate by the connectors (Column 12, lines 37-60).

Weldon does not disclose that the base plate comprises a composite comprising a ceramic material comprising pores that are at least partially infiltrated with a metal. Wang discloses an electrostatic chuck (see Figures 4a, 4b) comprising a base plate 175 comprising a composite of a porous ceramic infiltrated with metal (see Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electrostatic chuck of Weldon, and to provide a base plate as taught by Wang for high temperature operation of the chuck without excessive thermal or mechanical degradation (see Wang, Column 2, lines 29-32).

Claim 7 recites the elements of Claim 4, except that the electrostatic chuck of Claim 6 is recited. Therefore, please see the rejection for Claim 4 above.

Regarding Claim 8, Weldon discloses a heat transfer plate 105 below the base plate, the heat transfer plate having a heat transfer fluid channel 90 (see Figure 2) embedded therein.

Regarding Claims 9-10, Weldon discloses that the heat transfer plate comprises an upper portion comprising a first material made of copper and a lower portion

comprising a second material made of steel, and the heat transfer fluid channel 90 being embedded therebetween (see Column 23, lines 52-59, Column 24, lines 39-50).

Regarding Claims 14-15, Weldon discloses a thermally conductive layer between the heat transfer plate and base plate (Column 8, lines 1-14).

Regarding Claim 16, Weldon discloses a substrate processing chamber 50 comprising the electrostatic chuck and further comprising a gas supply 60 to provide a process gas in the chamber, a gas energizer 70 to energize the gas, and an exhaust 65 to exhaust the gas.

Claim 18 recites the elements of Claim 5, except that the electrostatic chuck of Claim 6 is recited. Therefore, please see the rejection for Claim 5 above.

6. Claims 11-12, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weldon (US 6, 108, 189) in view of Wang et al. (US 6, 538, 872) and Cole et al. (US 6, 700, 099). Claim 11 recites the combined limitations of Claims 6 and 8, and further limiting the heat transfer fluid channel comprising first and second spiral channels, the first spiral channel being adapted to provide a flow of fluid therethrough that is substantially opposite a flow of fluid through the second spiral channel.

Weldon and Wang do not disclose the spiral heat transfer channels. Cole discloses an electrostatic chuck having heat transfer fluid channels comprising spiral channels, the first spiral channel being adapted to provide a flow of fluid therethrough that is substantially opposite a flow of fluid through the second spiral channel (see Figure 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Weldon and Wang and to provide

spiral channels as taught by Cole to provide efficient and uniform heat transfer to ensure highly accurate and uniform temperature setting and wafer testing (see Cole, Column 5, lines 50-55).

Regarding Claim 12, Cole discloses the first and second spiral channels encircles a center of the plate 10, 3 times. Claims 20-21 basically recites the elements of Claims 14-15, except that the electrostatic chuck of Claim 11 is recited. Therefore, please see the rejections for Claims 14-15 above.

7. Claims 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weldon (US 6, 108, 189) in view of Wang et al. (US 6, 538, 872) and Flanigan et al. (US 6, 081, 414). Regarding Claim 13, Weldon and Wang do not disclose a spring assembly to apply pressure to the heat transfer plate. Flanigan a spring assembly 234 (see Figure 2, Column 2, lines 52-62) to apply pressure to a heat transfer plate. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Weldon and Wang, and to provide a spring assembly as taught by Flanigan for better heat transfer.

Claim 17 basically recites the combined limitations of Claims 6, 8, and 13, except that the plurality of holes of the annular flange is not recited. Therefore, please see the rejections for Claims 6, 8, and 13 recited above.

### ***Response to Arguments***

8. Applicant's arguments filed on 12/19/2006 have been fully considered but are moot in view of new grounds of rejection.




**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucy Thomas whose telephone number is 571-272-6002. The examiner can normally be reached on Monday - Friday 8:00 AM - 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LT  
September 24, 2007



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